

Appl. No. : 10/009,916
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AMENDMENTS TO THE CLAIMS

1. **(Previously presented)** An isolated or recombinant immunogenic polypeptide comprising a *Lawsonia spp.* SodC Polypeptide, a variant, or a truncated variant thereof, wherein said variant or truncated variant mimics or cross-reacts with a B-cell or T-cell epitope of *Lawsonia spp.* SodC Polypeptide.

2. **(Previously presented)** The isolated or recombinant immunogenic polypeptide of claim 1 wherein said polypeptide elicits the production of antibodies against *Lawsonia spp.* when administered to an avian or porcine animal.

3. **(Previously presented)** The isolated or recombinant immunogenic polypeptide of claim 1 which confers a protective immune response against *Lawsonia spp.* when administered to an avian or porcine animal.

4. **(Previously presented)** The isolated or recombinant immunogenic polypeptide of claim 1 wherein the *Lawsonia spp.* is *L. intracellularis*.

Claim 5 (Cancelled)

6. **(Previously presented)** An isolated or recombinant immunogenic polypeptide comprising:

(i) a peptide, oligopeptide or polypeptide comprising an amino acid sequence which has at least about 70% sequence identity to the amino acid sequence set forth in SEQ ID NO: 1; or

(ii) a peptide, oligopeptide or polypeptide which comprises an amino acid sequence having at least about 50% sequence identity to amino acid residues 1 to 42 of SEQ ID NO:1; or

(iii) a homologue or derivative of (i) or (ii) which mimics a B-cell or T-cell epitope of a *Lawsonia spp.* SodC polypeptide.

7. **(Previously presented)** The isolated or recombinant immunogenic polypeptide of claim 6 wherein said polypeptide elicits the production of antibodies against *Lawsonia spp.* in a porcine or avian animal.

8. **(Previously presented)** The isolated or recombinant immunogenic polypeptide of claim 6 wherein said polypeptide confers a protective immune response against *Lawsonia spp.* in a porcine or avian animal.

Claim 9 (Cancelled)

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10. **(Previously presented)** The isolated or recombinant immunogenic polypeptide of claim 8, wherein said protective immune response is induced in a porcine animal.

11. **(Previously presented)** The isolated or recombinant immunogenic polypeptide of claim 6 wherein the *Lawsonia spp.* is *L. intracellularis*.

Claim 12 (Cancelled)

13. **(Previously presented)** The isolated or recombinant immunogenic polypeptide of claim 6 comprising the amino acid sequence set forth in SEQ ID NO: 1 or the amino acid sequence encoded by the SodC-encoding nucleotide sequence of pALK14 (ATCC 207155).

14. **(Previously presented)** The isolated or recombinant immunogenic polypeptide of claim 13 consisting essentially of the amino acid sequence of SEQ ID NO: 1 or the amino acid sequence encoded by the SodC-encoding nucleotide sequence of pALK14 (ATCC 207155).

Claim 15-16 (Cancelled)

17. **(Previously presented)** The isolated or recombinant immunogenic polypeptide of claim 6 comprising amino acid residues about 1 to about 42 of SEQ ID NO:1 wherein said polypeptide elicits the production of antibodies against *Lawsonia intracellularis* when administered to an avian or porcine animal.

18. **(Previously presented)** The isolated or recombinant immunogenic polypeptide of claim 17 that consists essentially of about amino acid 1 to about amino acid 42 of SEQ ID NO: 1.

19. **(Previously presented)** The isolated or recombinant immunogenic polypeptide of claim 17 which induces a protective immune response against *Lawsonia intracellularis* in a porcine or avian animal.

20. **(Previously presented)** The isolated or recombinant immunogenic polypeptide of claim 19 which induces a protective immune response against *Lawsonia intracellularis* in a porcine animal.

21. **(Previously presented)** A vaccine composition for the prophylaxis or treatment of infection of an animal by *Lawsonia spp.*, said vaccine composition comprising an effective amount of an immunogenic component comprising an isolated or recombinant polypeptide having at least about 70% sequence identity to the amino acid sequence set forth in

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SEQ ID NO: 1 or at least about 50% sequence identity to amino acid residues 1 to 42 of SEQ ID NO:1 or an immunogenic homologue, or derivative thereof which is immunologically cross-reactive with *Lawsonia intracellularis*; and one or more carriers, diluents or adjuvants suitable for veterinary or pharmaceutical use.

22. **(Previously presented)** The vaccine composition according to claim 21 wherein the *Lawsonia spp.* is *L. intracellularis*.

23. **(Currently Amended)** The vaccine composition according to claim 20 21 wherein the isolated or recombinant polypeptide comprises the amino acid sequence set forth in SEQ ID NO: 1 or the amino acid sequence encoded by the SodC-encoding nucleotide sequence of pALK14 (ATCC 207155).

Claim 24 (Cancelled)

25. **(Previously presented)** The vaccine composition according to claim 22 wherein the immunogenic component comprises an isolated or recombinant polypeptide that comprises about amino acid residue 1 to about amino acid residue 42 of SEQ ID NO: 1.

26. **(Previously presented)** The vaccine composition of claim 25, wherein the immunogenic component consists essentially of about amino acid 1 to about amino acid 42 of SEQ ID NO: 1.

27. **(Currently Amended, Withdrawn)** A combination vaccine composition for the prophylaxis or treatment of the infection of an animal by *Lawsonia spp.*, said vaccine composition comprising:

(i) a first immunogenic component comprising an ~~isolated or recombinant polypeptide having at least about 70% sequence identity to the amino acid sequence set forth in SEQ ID NO: 1 or at least about 50% sequence identity to amino acid residues 1 to 42 of SEQ ID NO:1 or an immunogenic homologue or derivative thereof which is immunologically cross-reactive with *Lawsonia intracellularis* immunogenic polypeptide according to Claim 6;~~

(ii) a second immunogenic component comprising an antigenic *L. intracellularis* peptide, polypeptide or protein; and

(iii) one or more carriers, diluents or adjuvants suitable for veterinary or pharmaceutical use.

Claims 28 - 35 (Cancelled)

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36. **(Withdrawn)** A method of identifying a previous or current infection with *Lawsonia intracellularis* or a microorganism that is immunologically cross-reactive thereto, said method comprising:

contacting blood or serum from said animal with the immunogenic polypeptide of claim 1 for a time and under conditions sufficient for an antigen: antibody complex to form; and detecting said complex formation.

Claims 37 - 47 (Cancelled)

48. **(Withdrawn)** The combination vaccine according to claim 27 wherein the second immunogenic component is selected from the group consisting of OmpH, FlgE, hemolysin and autolysin.

49. **(Previously presented)** The vaccine composition of claim 23, wherein the isolated or recombinant polypeptide consists essentially of the amino acid sequence of SEQ ID NO: 1.

50. **(NEW)** An isolated or recombinant immunogenic polypeptide comprising a *Lawsonia spp.* SodC Polypeptide.

51. **(NEW)** The isolated or recombinant immunogenic polypeptide of claim 1 wherein said polypeptide elicits the production of antibodies against *Lawsonia spp.* when administered to an avian or porcine animal.

52. **(NEW)** The isolated or recombinant immunogenic polypeptide of claim 1 which confers a protective immune response against *Lawsonia spp.* when administered to an avian or porcine animal.

53. **(NEW)** The isolated or recombinant immunogenic polypeptide of claim 1 wherein the *Lawsonia spp.* is *L. intracellularis*.

54. **(NEW)** An isolated or recombinant immunogenic polypeptide comprising a peptide, oligopeptide or polypeptide comprising SEQ ID NO: 1.

55. **(NEW)** The isolated or recombinant immunogenic polypeptide of claim 8, wherein said protective immune response is induced in a porcine animal.

56. **(NEW)** A vaccine composition for the prophylaxis or treatment of infection of an animal by *Lawsonia spp.*, said vaccine composition comprising an effective amount of an immunogenic component comprising an isolated or recombinant polypeptide comprising amino acids 1 to 42 of SEQ ID NO:1 which is immunologically cross-reactive with

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Lawsonia intracellularis; and one or more carriers, diluents or adjuvants suitable for veterinary or pharmaceutical use.

57. (NEW) The vaccine composition according to claim 21 wherein the *Lawsonia spp.* is *L. intracellularis*.